Brown Marmorated Stink Bug: statewide monitoring and apple damage assessments

Janet van Zoeren, Lake Ontario Fruit
Identification

• Mottled brown to grey

• ½-¾” long

• Legs and antennae are brown with faint white bands

• ‘if it’s in your house, it’s bmsb’
Background – BMSB in New York

• Invasive, first recorded in NY in 2007

• Worst damage historically in Hudson Valley

In 2019 – ‘they show up, but I don’t need to spray for them’

Vs In 2022 – ‘wow, I’m seeing a lot of stink bug damage in some blocks/varieties’
1. Is BMSB driving insecticide application(s) in NY? 
   
   (Should it be?)

2. How are our growers deciding when / if to spray for it? 
   
   (Can we improve threshold/timing recs?)
Objective 1:
How much damage might we see in NY orchards?

Objective 2:
Do monitoring traps reflect damage potential?
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Site Selection

• Blocks suspected to have high damage
  • Late harvest susceptible varieties
  • Honeyscrisp lineage
• Edge bordering on woodlot
• History of damage or suspected damage
Map of 2022 bmsb research sites
Damage Assessments

• Collect 200 fruits from near the traps, throughout the canopy

• Count # of stink bug blemishes per fruit
  • At harvest
  • After 5wks in storage
## Percent fruits with BMSB damage

<table>
<thead>
<tr>
<th>County</th>
<th>immediate</th>
<th>stored 5wks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dutchess</td>
<td>45</td>
<td>53</td>
</tr>
<tr>
<td>Ulster</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Montgomery</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Essex</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Niagara</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>Oswego</td>
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<td>4</td>
</tr>
<tr>
<td>Wayne</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Ontario</td>
<td>8</td>
<td>11</td>
</tr>
</tbody>
</table>
Damage potential – findings to date

• 0-50% fruits damaged in “high risk blocks”.

• Damage worst in Hudson valley, followed by WNY

• Very little damage seen in Champlain region

• Surface level damage is not more commonly seen after storage (colleagues have suggested need to peel every fruit next year)
Objective 1:
How much damage might we see in NY orchards?

Objective 2:
Do monitoring traps reflect damage potential?
Monitoring methods

• Three clear sticky traps along wood edge

• Dual BMSB / GSB lure

• Check traps weekly from June till harvest
Cumulative monitoring catch

BMSB trap catch by county

- County: Dutchess, Essex, Montgomery, Niagara, Ontario, Oswego, Ulster, Wayne

Cumulative average BMSB per trap vs. Date Collected (07/01/2022 to 11/01/2022)
Trap catch vs damage
Cumulative monitoring catch

BMSB trap catch by county

- County
  - Niagara
  - Ontario
  - Oswego
  - Wayne

Cumulative average BMSB per trap

Date Collected:
- 07/01/2022
- 08/01/2022
- 09/01/2022
- 10/01/2022
- 11/01/2022
Trap catch vs damage

BMSB trap catch by county

Cumulative average BM SB per trap

Date Collected:

07/01/2022 to 11/01/2022

Counties:
- Niagara
- Ontario
- Oswego
- Wayne

SB feeding damage by county

Average # feeding sheets per fruit

Counties:
- Niagara
- Ontario
- Oswego
- Wayne
Trap catch vs damage

But, there were differing spray schedules in these blocks
Summary – findings to date

- Monitoring traps caught most bmsb in Ontario co, followed by WNY and Champlain valley

- Doesn’t seems to correlate to damage

- Hope to follow up with paired sprayed vs unsprayed block study, to more directly address whether monitoring traps correlate to damage potential.
Management options

• Landscape level pest – constantly moving in from woods

• a.i. **bifenthrin**, thiamethoxam, methomyl (**Brigade, Actara, Lannate**)
  • All 14+ days PHI

• Anti-feeding product: biopesticide Venerate (0 day PHI)

• Perimeter sprays have very good efficacy
Thank you!

• to the ARDP for funding this project

• to Monique Rivera, Dan Donohue, Mike Basedow, and many technicians and grower collaborators who helped in this research

• Questions?
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